tion, N. J., thunderstorms. Edinboro, Pa., thunderstorm; one person killed by lightning. Near Owensboro, Ky., windstorm. Van Wert, Ohio, thunderstorm; one person killed by lightning. Near Lanark and Bloomington, Ill., and Anderson, Ind., thunderstorms.

25th.—Plymouth, Mass., thunderstorm. Near West Simsbury, Conn., thunderstorm; stock killed by lightning. Dale Enterprise, Va., thunderstorm. Leonia, Miss., Sycamore, Paw Paw, and Hanover, Ill., Eagle, Wis., Palmyra, Steffenville, Arthur, and Kirksville, Mo., windstorms. Near Albany, Tex., thunderstorm; stock killed by lightning. Baird, Tex., thunderstorm; one person killed by lightning. Chattanooga, Tenn., Abilene and Clyde, Tex., Columbia, Mo., Marquette, Mich., Milwaukee, Wis., Keokuk, Grundy Center and Sioux City, Iowa, thunderstorms. Dedham, Iowa, thunderstorm; man killed by lightning.

26th.—Bemus Point, Lyons, Friendship, and Clyde, N. Y., thunderstorms. Le Roy, N. Y., thunderstorm; one person killed by lightning. Palmyra, N. Y., thunderstorm; stock killed by lightning. Edinboro, Pa., thunderstorm; man and stock killed by lightning. Albion and Springboro, Pa., hailstorms. Leechburg, Pa., thunderstorm; one person killed by lightning. Evans City, Pa., thunderstorm; five horses killed by lightning. Corry, Pa., Pushmataha, Ala., near Elon, Ark., Quincy, Ill., and Anderson, Ind., thunderstorms. Mount Sterling, Ky., thunderstorm; horse killed by lightning.

27th.—North Billerica, Mass., thunderstorm; two persons killed by lightning. Millville and Vineland, N. J., and York, Pa., thunderstorms. Spottsville, Va., thunderstorm; horse killed by lightning. Parkersburg, W. Va., rainstorm. Dresden, Kans., hailstorm.

28th.—Tewkesbury, Mass., thunderstorm; two persons killed by lightning.

29th.—Coeymans, N. Y., and Staunton, Va., hailstorms. Lambertville, N. J., thunderstorm. Abilene, Tex., rainstorm.

30th.—Millville, N. J., Louisburg, N. C., and Nashville, Tenn., thunderstorms. Pensacola, Fla., thunderstorm; three persons stunned by lightning. Leonia, Miss., windstorm.

SUNSHINE AND CLOUDINESS.

The quantity of sunshine, and therefore of heat, received by the atmosphere, as a whole, is very nearly constant from year to year, but the proportion received by the surface of the earth depends largely upon the absorption by the atmosphere, and varies with the distribution of cloudiness. The sunshine is now recorded automatically at 17 regular stations of the Weather Bureau by its photographic, and at 28 by its thermal effects. At three stations records are kept by both methods. The results are given in Table XI for each hour of local, not seventy-fifth meridian, time. The cloudiness is determined by numerous personal observations at all stations during the daytime, and is given in the column of "average cloudiness" in Table I; its complement or clear sky is given in the last column of Table XI.

COMPARISON OF SUNSHINE AND CLEAR SKY.

The sunshine registers give the *duration* of direct sunshine whence the percentage of possible sunshine is derived; the observer's personal estimates give the percentage of *area* of clear sky. It should not be assumed that these numbers should agree, and for comparative purposes they have been brought together, side by side, in the following table, from which it appears that, in general, the instrumental record of percentages of duration of sunshine is almost always larger than the observer's personal estimates of percentages of area of clear sky; the average excess for June, 1895, is 9 per cent for photographic records, and 14 per cent for thermometric records. The details are shown in the following table:

Difference between instrumental and personal observations of sunshine.

Photographic stations.	Instrumental.	Personal.	Difference.	Thermometric stations.	Instrumental.	Personal.	Difference.
Tucson, Ariz	88	73	15	Cincinnati, Ohio†	86	67	19
Salt Lake City, Utah†.	80	55	25	Chicago, Ill	83	70	13
Cleveland, Ohio	73	59	14	Columbus, Ohio	81	54	27
Portland, Oreg.†	73	56	17	Salt Lake City, Utah†.	81	55	26
Galveston, Tex.	72	67	5	Washington, D. C.	80	62	18
Santa Fe, N. Mex	71	58	13	Atlanta, Ga.	78	56	22
Savannah, Ga	70	62	8	Detroit, Mich.	77	65	12
Denver, Colo	68	50	18	Norfolk, Va	76	74	2
Dodge City, Kans.	65	57	8	Rochester, N. Y.	76	64	12
Memphis, Tenn.	63	62	1	Louisville, Ky	75	58	17
Helena, Mont.	59	54	5	Key West, Fla	73	54	19
San Diego, Cal.	59	64	— 5	St. Louis, Mo	72	49	23
Bismarck, N. Dak	57	44	13	San Francisco, Cal	70	69	1
Eastport, Me	48	34	14	Portland, Oreg.†	69	56	13
Cincinnati, Ohio†	.....	67	.....	Philadelphia, Pa	68	45	23
Kansas City, Mo.*	.....	.....	.....	Little Rock, Ark	65	42	23
Spokane, Wash.	.....	42	.....	New Haven, Conn.	64	58	6
				Seattle, Wash	64	50	14
				Marquette, Mich	63	38	25
				Portland, Me	62	33	29
				Baltimore, Md.	60	58	2
				Buffalo, N. Y.	60	49	11
				Des Moines, Iowa.	60	38	22
				Vicksburg, Miss	59	56	3
				Wilmington, N. C.	59	61	— 2
				Boston, Mass	56	47	9
				New York, N. Y	56	47	9
				New Orleans, La	50	50	0

* Record incomplete. † Records kept by both methods.

ATMOSPHERIC ELECTRICITY.

The statistics relative to auroras and thunderstorms are given in Table X, which shows the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month.

The dates on which reports of thunderstorms for the whole country were most numerous were: 12th, 221; 13th, 215; 24th, 283; 25th, 232; 26th, 235; 27th, 200.

Thunderstorm reports were most numerous in: Ohio, 190; Pennsylvania, 196; Colorado, 166; Iowa, 161; Louisiana, 153; Minnesota, 181; and Missouri, 260. The dates of occurrence of thunderstorms were most numerous in: Alabama, 26 days; Colorado, 26 days; Louisiana, 30; Minnesota, 28; Missouri, 26.

Severe thunderstorms are especially mentioned under "Local Storms."

Auroras.—The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four preceding and following the date of full moon, viz, from the 2d to the 10th, inclusive. On the remaining twenty-one days of this month 55 reports were received, or an average of about two or three per day. The dates on which the reported number especially exceeded this average were the 6th and 9th.

Auroras were reported by a large percentage of observers in: Colorado, 16 per cent; New Hampshire, 50; North Dakota, 16.

The largest number of days on which auroras were reported in any State were: Minnesota and Washington, 7 days; New Hampshire, 9; North Dakota, 6.

DAMAGE BY LIGHTNING, JUNE, 1895.

The following statistics of the damage done by lightning, so far as reported by the observers of this Bureau, are furnished by Mr. Alexander McAdie: During June, 1895, 97 persons were killed and 89 severely injured; 14 empty and 50 full barns, 89 dwellings, and 15 churches were destroyed; 50 horses in stables and 45 in pasture were killed, The total estimated value of property destroyed was $85,200.

CANADIAN DATA—THUNDERSTORMS AND AURORAS.

Thunderstorms were reported as follows: Saint Andrews, 14. Father Point, 1, 11, 12, 21, 23, 29. Quebec, 13, 14, 21, 23,